

### REMARKS

This amendment is submitted in response to the non-final Office Action mailed December 1, 2006 (hereinafter, "the Office Action"). Following entry of this amendment, claims 1-3, 5-27, 29-46 and 48-63 remain pending in this application. Claims 1, 23, 25, and 44 are independent. In the Office Action, the Examiner:

- rejected pending claims 1-3, 5-9, 11-12, 21, 25-27, 29-33, 44-46, 48-51, 53, 60 and 64 under 35 U.S.C. § 103(a) as obvious in view of United States Patent No. 4,408,601 to Wenk (hereinafter "Wenk") in combination with United States Patent No. 5,709,686 to Talos et al. (hereinafter "Talos");
- rejected pending claims 10, 13-20, 22, 24, 34-39, 41, 43, 52, 54-59, 61 and 63 under 35 U.S.C. § 103(a) as obvious in view of Wenk in combination with both Talos and U.S. Patent No. 3,716,050 to Johnston (hereinafter "Johnston"); and
- rejected pending claims 23, 42, 62, and 65 under 35 U.S.C. § 103(a) as obvious in view of Wenk in combination with both Talos and U.S. Patent No. 6,454,769 to Wagner et al. (hereinafter "Wagner").

In response, applicant has amended claims 1, 23, 25, and 44. Claims 64 and 65 have been canceled. These claim amendments do not represent acquiescence in the Examiner's rejections, but rather are made only to expedite prosecution of the present application. Applicant expressly reserves the right to pursue the subject matter of any previously presented claims in one or more continuation applications. As discussed more fully below, Applicant respectfully submits that each of the currently pending claims define features of the present invention that are not disclosed, taught or suggested by the prior art of record and respectfully requests allowance of same.

#### *April 24, 2007 Telephonic Interview*

Applicants wish to thank the Examiner for the courtesy of participating in the telephonic interview with applicants' representative Thomas Scully on April 24, 2007. During the interview, the cited prior art references and outstanding claim rejections were discussed and applicants' representative presented proposed claim amendments to

distinguish over the cited Talos reference. Applicants have incorporated the substance of those discussions and proposed amendments into this response.

**Claim Rejections - 35 U.S.C. § 103(a)**

Independent claims 1, 25 and 44 were rejected under 35 U.S.C. § 103(a) as obvious in view of Wenk in combination with Talos. Independent claim 23 was rejected as obvious in view of Wenk in combination with both Talos and Wagner. Applicant respectfully traverses these claim rejections and, for the reasons discussed below, submits that amended independent claims 1, 23, 25 and 44 are patentable over the cited prior art of record.

Amended independent claim 1 recites a bone plate comprising, *inter alia*, “at least one combination hole extending through the upper surface and the lower surface, the at least one combination hole including a first portion having a substantially circular outer periphery defining a first center point, and a plurality of threads disposed on the outer periphery; and a second portion overlapping the first portion and having an unthreaded, elongated outer periphery defining a second center point; wherein the first center point is spaced apart from the second center point along the upper surface and the plurality of threads extend over an angle of greater than 180° with respect to the first center point to enclose and engage a threaded screw head inserted into the first portion over an angular range greater than 180° and prevent the screw head from shifting laterally toward the second portion of the hole.” Claims 23, 25 and 44 have been amended to recite similar limitations.

The Office Action acknowledges that Wenk fails to disclose a bone plate with a combination hole including a first portion having a substantially circular outer periphery defining a first center point, and a plurality of threads disposed on the outer periphery, “where the plurality of threads extend over an angle of greater than 180° with respect to the first center point.” The Examiner cites FIG. 1 of Talos as showing “a plurality of threads disposed on the outer periphery of the first portion of the combination hole extending over an angular range of about 60 degrees to 179 degrees.” (Office Action at 3.) Further, the Office Action states that “the term ‘about 180 degrees’ does not make the invention distinguish over the prior art because 179 degrees is ‘about 180 degrees’”, and “Applicant has not provided any support as to why a range of greater than the 180 degrees would make the invention better than the invention which only discloses 179 degrees.” (*Id.* at 6.)

Applicant has amended each of independent claims 1, 23, 25 and 44 to remove

the word “about” in reference to the recited angular limitation. Moreover, applicant has also amended claim 1 to make clear that “the plurality of threads extend over an angle of greater than 180° with respect to the first center point to enclose and engage a threaded screw head inserted into the first portion over an angular range greater than 180° and prevent the screw head from shifting laterally toward the second portion of the hole.” Claims 23, 25 and 44 have been similarly amended. As discussed during the telephonic interview with the Examiner, the threaded structure disclosed by Talos would not enclose or encapsulate an inserted screw head as well as a plurality of threads extending over an angle of greater than 180°. Consequently, when subject to the forces encountered during healing, a screw inserted through the hole shown in Talos would be more likely to shift laterally toward the non-threaded portion of the hole because the threads form *less than* a semi-circle around the screw, *i.e.*, a maximum of 179°. Such movement and loosening of the screw during healing is undesirable.

The originally-filed specification in this matter fully supports the claim amendments discussed above. More particularly, with reference to FIG. 1, angles 9 and 10 clearly show the threaded portion of the hole extending over an angle greater than 180° to enclose and engage a threaded screw head over an angular range greater than 180°. (*See also* US 2004/0236332 A1 to Frigg at ¶ 0034 (hereinafter, “Frigg”).) As the specification explains,

[w]ith the threaded screw-head engaged in the threads of the first portion, the bone plate may be used as an internal fixative. Use in this configuration, however, creates *high stresses* at the interface of the bone plate and screw-head . . . This increase in stress is taken into account by *the threaded portion of the hole extending over a range of at least about 180°* with respect to a central axis of the hole, and thereby *enclosing the screw-head in at least this angular range.* . . The threaded portion may extend over a range of between about 190° and about 280°, and preferably over a range of between about 200° to 250°, thus maximizing the strength of the bone screw to bone plate interface.

(Frigg at ¶ 0012.) Thus, this disclosure makes clear that the first portion of the hole having threads extending over an angle greater than 180° aids in maximizing the strength of the bone screw to bone plate interface by “enclosing the screw-head” over this range, thereby preventing the screw head from shifting laterally toward the second portion of the hole, as recited in amended claims 1, 23, 25 and 44.

Accordingly, for at least this reason, applicant respectfully requests that the

Appl'n. Serial No. 10/695,392  
Filed: October 29, 2003  
Docket No.: 8932-819-999  
CAM No.: 232200-999215

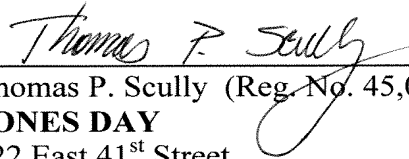
obviousness rejection of claims 1, 23, 25, and 44 be withdrawn and that those claims, and each of their dependent claims be allowed.

In view of the above amendments and remarks, Applicants respectfully request that the Examiner reconsider pending claims 1-3, 5-27, 29-46 and 48-63 with a view towards allowance. The Examiner is invited to call the undersigned attorney at (212) 326-3939 if a telephone call could help resolve any remaining issues.

No additional claim fees are due. A separate petition for a two-month extension of time is submitted herewith. Should any additional fees be required, please charge such fees to Jones Day deposit account no. 50-3013.

Respectfully submitted,

Date: May 1, 2007

  
\_\_\_\_\_  
Thomas P. Scully (Reg. No. 45,086)  
**JONES DAY**  
222 East 41<sup>st</sup> Street  
New York, NY 10017  
(212) 326-3939